Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-025 H2701 (H2691 05) 11/11/04

DATE RECEIVED: 08/26/04 LVL LOT # :0408L460

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B191J6						
% SOLIDS	001	S	04L%S149	08/25/04	08/28/04	08/28/04
% SOLIDS	001 REP	S	04L%S149	08/25/04	08/28/04	08/28/04
CHROMIUM VI	001	S	04LVI028	08/25/04	09/14/04	09/14/04
CHROMIUM VI	001 REP	S	04LVI028	08/25/04	09/14/04	09/14/04
CHROMIUM VI	001 MS	S	04LVI028	08/25/04	09/14/04	09/14/04
CHROMIUM VI	001 MSD	S	04LVI028	08/25/04	09/14/04	09/14/04
NITRATE NITRITE	001	S	04LN3054	08/25/04	09/23/04	09/24/04
NITRATE NITRITE	001 REP	S	04LN3054	08/25/04	09/23/04	09/24/04
NITRATE NITRITE	001 MS	S	04LN3054	08/25/04	09/23/04	09/24/04
OIL & GREASE BY GRAV	001	S	04LOG024	08/25/04	09/03/04	09/04/04
OIL AND GREASE BY GR	001 REP	S	04LOG024	08/25/04	09/03/04	09/04/04
OIL AND GREASE BY GR	001 MS	S	04LOG024	08/25/04	09/03/04	09/04/04
SULFIDE	001	S	04LSDA46	08/25/04	08/30/04	08/30/04
SULFIDE	001 REP	S	04LSDA46	08/25/04	08/30/04	08/30/04
SULFIDE	001 MS	S	04LSDA46	08/25/04	08/30/04	08/30/04
LAB QC:						
CHROMIUM VI	MB1	S	04LVI028	N/A	09/14/04	09/14/04
CHROMIUM VI	MB1 BS	S	04LVI028	N/A	09/14/04	09/14/04
CHROMIUM VI	MB1 BSD	S	04LVI028	N/A	09/14/04	09/14/04
NITRATE NITRITE	MB1	S	04LN3054	N/A	09/23/04	09/24/04
NITRATE NITRITE	MB1 BS	S	04LN3054	N/A	09/23/04	09/24/04
OIL & GREASE BY GRAV	MB1	S	04LOG024	N/A	09/03/04	09/04/04
OIL AND GREASE BY GR	MB1 BS	S	04LOG024	N/A	09/03/04	09/04/04
SULFIDE	MB1	S	04LSDA46	N/A	08/30/04	08/30/04
SULFIDE	MB1 BS	S	04LSDA46	N/A	08/30/04	08/30/04
SULFIDE	MB1 BSD	S	04LSDA46	N/A	08/30/04	08/30/04

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-025 H2701 H2691 05
LVL#: 0408L460

W.O.#: 11343-606-001-9999-00
Date Received: 08-26-04

11/11/04

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 soil sample.

2. The sample was prepared and analyzed in accordance with the methods indicated on the attached glossary.

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Sulfide was within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries for Nitrate Nitrite, Oil and Grease, Chromium VI and Sulfide were within the 75-125% control limits.

8. The replicate analyses for Nitrate Nitrite, Oil and Grease, Chromium VI and Sulfide were within the 20% RPD control limit.

9. Results for solid samples are reported on a dry weight basis.

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Judy Stone

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

10/4/04
Date

njp\i08-460

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

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WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		✓ 9071A	✓ EPA 413.1 (mod.)
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		✓ 9030B(mod) / 9034	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: Nitrate Nitrite **Method:** EPA 353.2 (mod.)

Other: **Method**

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METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/28/04

CLIENT: TNUHANFORD F03-025 H2701 H2691 03 11/4/04 LVL LOT #: 0408L460
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B191J6	% Solids	96.1	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
		Nitrate Nitrite	0.81	MG/KG	0.08	1.0
		Oil & Grease Gravimetri	694 u	MG/KG	694	1.0
		Sulfide	44.2 u	MG/KG	44.2	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/28/04

CLIENT: TNUHANFORD F03-025 H2701 H2691 11/11/04

LVL LOT #: 0408L460

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	04LVI028-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	04LN3054-MB1	Nitrate Nitrite	0.08 u	MG/KG	0.08	1.0
BLANK10	04LOG024-MB1	Oil & Grease Gravimetri	667 u	MG/KG	667	1.0
BLANK10	04LSDA46-MB1	Sulfide	40.0 u	MG/KG	40.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/28/04

11/11/04

CLIENT: TNUHANFORD F03-025 H2701 H2691 H2691

LVL LOT #: 0408L460

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B191J6	Soluble Chromium VI	4.5	0.21u	4.2	108.0	1.0
		Insoluble Chromium VI	1280	0.21u	1230	104.7	100
		Nitrate Nitrite	3.2	0.81	2.0	117.2	1.0
		Oil & Grease Gravimetr	5280	694 u	7000	75.5	1.0
		Sulfide	415	17.7	473	84.0	1.0
BLANK10	04LVI028-MB1	Soluble Chromium VI	4.0	0.20u	4.0	100	1.0
		Insoluble Chromium VI	1170	0.20u	1180	99.0	100
BLANK10	04LN3054-MB1	Nitrate Nitrite	2.0	0.08u	2.0	97.8	1.0
BLANK10	04LOG024-MB1	Oil & Grease Gravimetr	6000	667 u	6840	87.7	1.0
BLANK10	04LSDA46-MB1	Sulfide	326	40.0 u	372	87.8	1.0
		Sulfide MSD	342	40.0 u	372	92.1	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 09/28/04

CLIENT: TNUHANFORD F03-025 H2701 H2691 aj 11/11/04 LVL LOT #: 0408L460
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	04LSDA46-MB1	Sulfide	87.8	92.1	4.8

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/28/04

CLIENT: TNUHANFORD F03-025 H2701 H2691 CS 11/11/04 LVL LOT #: 0408L460
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B191J6	% Solids	96.1	95.9	0.23	1.0
		Chromium VI	0.21u	0.21u	NC	1.0
		Nitrate Nitrite	0.81	0.94	14.8	1.0
		Oil & Grease Gravimetri	694 u	694 u	NC	1.0
		Sulfide	44.2 u	42.3 u	NC	1.0

Lionville Laboratory Use Only

0408L4160

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY INC.

Client TNU Hanford F03-025

Est. Final Proj. Sampling Date

Project # 113493-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec Del Std TAT 30 Days

Date Rec'd 8/26/04 Date Due 9/25/04

Refrigerator # A 6

#/Type Container: Liquid; Solid 1PL 1

Volume: Liquid; Solid 250 1

Preservatives

ANALYSES REQUESTED →

ORGANIC: VOA; BNA; Pest/PCB; Herb; CRL NaOH/HNO3 sulfide oil/grease

INORG: Metal; CN

Lionville Laboratory Use Only: ICRL 1N3NO; ISFD IOGER

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ICRL 1N3NO	ISFD IOGER
001	B191J6	✓	✓	S	8/25/04	0900	1	✓

Special Instructions:

DATE/REVISIONS:

1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ___ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Fedex	JKemy	8/26/04	0955

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"	ORIGINAL REWRITTEN		

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FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-025-117	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
Pope/Pfister/Wiberg/Tyra	TRENT, STEVE	373-5689	TRENT, SJ	AIR QUALITY ☐	45 Days / 45 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
216-S-20; 47.5ft-50ft	200-LW-1/LW-2 Characterization - Soil		F03-025		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**		
GRP-04-010	HNF-N-356 1	119143ES10	Federal Express		
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
~~Eberline Services~~ RECRA 8-18-04	See PTR 14004		See PTR 14004		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
N/A

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	Cool 4C	None	
TYPE OF CONTAINER	aG	aG	
NO. OF CONTAINER(S)	1	1	
VOLUME	250mL	250mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B191J6	SOIL	8/25/04	0900	X	

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Dana Wiberg Dana Wiberg	8/25/04 1200	Site Frige #1 W0-026	8/25/04 1200
Site Frige #1	8/25/04 1140	Greg Thomas Greg Thomas	8/25/04 1140
Greg Thomas Greg Thomas	8/25/04 1140	Fed Ex	
Fed Ex		JHenry	8/26/04 0955

SPECIAL INSTRUCTIONS

(1)Chromium Hex - 7196; NO2/NO3 - 353.2; Sulfides - 9030; Oil & Grease - 413.1; ~~(2)Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228) Technetium-99; Isotopic Thorium (Thorium-232) Tritium - H3; Carbon-14; Strontium-89,90 -- Total Sr;~~ TMT 8-4-04

Tie to radiological screen B191H4

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford **Date:** 8/20/04

Purchase Order / Project# /
SAF# / SOW# / Release #:

LvLI Batch # : 0408L460 **Sample Custodian:** Henry

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 791323706180	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient?	Temp	3 °C	Cooler # GRP-04-010	
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	☑ Yes	☐ No		
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
13.	VOA, TOC, TOX free of headspace?	☑ Yes	☐ No	☐ N/A	
14.	QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B